



Mobile-assisted language learning for EFL speaking development: Evidence from the use of the PORO English application

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ABSTRACT

This study investigated the use of the PORO English Application as a mobile-assisted language learning resource to support EFL students' speaking performance. The study employed a one-group pre-test-post-test design involving 30 second-grade students at SMPN 8 Palopo. Data were collected through speaking assessments covering four dimensions: vocabulary, fluency, pronunciation, and comprehension. The quantitative data were analyzed using descriptive statistics and a paired-samples *t*-test. The findings showed an increase in students' overall speaking performance, with the mean score rising from 4.47 in the pre-test to 7.93 in the post-test. Improvements were also observed across all four assessed dimensions. The paired-samples analysis yielded a *t*-value of 30.196 with 29 degrees of freedom, indicating a statistically significant difference between students' pre-test and post-test scores based on the statistical criterion used in the study. These findings suggest that PORO can serve as a useful supplementary resource for providing learners with repeated exposure to spoken English and opportunities for oral practice. However, because the study did not include a control group, the findings should be interpreted as evidence of improvement following the intervention rather than definitive evidence of a causal effect of the application.

1. INTRODUCTION

Speaking is a central component of second and foreign language learning because it enables learners to use linguistic knowledge for actual communication. Unlike receptive knowledge that can remain largely internal, speaking requires learners to retrieve vocabulary, organize ideas, produce comprehensible utterances, and respond to interlocutors in real time. For learners of English as a foreign language (EFL), developing these abilities can be particularly challenging because opportunities to use English outside the classroom may be limited. Classroom instruction therefore needs to provide learners with sufficient opportunities to encounter spoken English, rehearse language forms, produce oral language, and receive opportunities for repeated practice. Speaking development is consequently not only a matter of learning linguistic forms but also of creating learning conditions in which students can repeatedly use and refine those forms in meaningful ways.



The difficulty of developing speaking proficiency is particularly relevant in contexts where English is learned primarily as a foreign language. Learners may have relatively limited exposure to English outside formal instruction and may consequently have fewer opportunities to hear authentic spoken English or practice producing English independently. Difficulties may emerge in several dimensions of oral performance, including vocabulary use, fluency, pronunciation, and comprehension. Limited vocabulary can restrict learners' ability to formulate messages, while insufficient fluency can make speech hesitant and fragmented. Pronunciation difficulties can reduce comprehensibility and make learners reluctant to speak, and weaknesses in comprehension may make it difficult for learners to respond appropriately during oral interaction. These dimensions are interrelated, meaning that speaking instruction needs to address oral performance as a multidimensional competence rather than focusing on a single linguistic feature.

In Indonesian EFL classrooms, these challenges are also important because opportunities for sustained English-speaking practice can be constrained by classroom time, class size, students' confidence, and the availability of appropriate learning resources. Previous studies in Indonesia have reported the potential of mobile-assisted language learning (MALL) to support speaking development. For example, Pebiana and Febria (2023) investigated MALL in relation to students' motivation for speaking, while Sari et al. (2024) examined its effectiveness in enhancing EFL students' speaking skills at the junior-secondary level. Asikin et al. (2025) similarly investigated MALL for English speaking proficiency among Indonesian high-school students. These studies indicate that mobile technologies can provide an additional environment for English practice beyond conventional teacher-fronted instruction. However, the effectiveness of mobile learning cannot simply be assumed from the presence of technology. It depends on the nature of the application, the learning activities provided, the extent of learner engagement, and how the technology is integrated into instruction.

The broader MALL literature provides growing empirical support for this perspective. Li (2024), in a meta-analysis of research on MALL and foreign-language speaking development, found an overall positive effect of mobile-assisted language learning on speaking outcomes. Importantly, the analysis also indicated that the effects varied according to factors such as instructional approach and intervention duration. This suggests that mobile technology should not be regarded as an independent solution to speaking difficulties; rather, its pedagogical value is related to the opportunities and forms of practice that it makes possible. Similarly, Figueiredo (2023), through a systematic review of mobile-assisted learning and language attainment, demonstrated the increasing relevance of mobile technologies for language learning while also highlighting variation across learning contexts and outcomes. Recent methodological work has further emphasized the importance of carefully examining how commercial mobile applications are used and evaluated in quantitative and mixed-methods research (Kessler et al., 2025).

Speaking-specific studies provide further evidence of the potential contribution of mobile applications. Hwang et al. (2024) found that a MALL application could support EFL learners' speaking development while also influencing foreign language enjoyment and language-specific grit. Benlaghrissi and Ouahidi (2024) reported positive outcomes from mobile-assisted project-based learning for EFL speaking skills, including dimensions related to oral performance. Ahmed et al. (2022) examined the use of



Duolingo and WhatsApp and reported differences in speaking accuracy and fluency associated with mobile-assisted learning. Aliakbari and Mardani (2022) likewise found evidence that mobile-assisted learning could contribute to speaking development. Criollo-C et al. (2022) demonstrated the potential of a mobile-application-based methodology for improving English speaking skills. Collectively, these studies suggest that mobile applications can expand the spaces in which learners encounter and practice spoken English, particularly when activities require learners to engage actively with language rather than merely consume digital content.

One particularly relevant dimension of mobile-assisted speaking development is pronunciation. Pronunciation is closely related to oral comprehensibility because learners need to produce sounds, stress patterns, rhythm, and intonation in ways that allow listeners to understand their intended messages. Mobile technologies can provide repeated access to spoken models, allowing learners to listen to target pronunciation and reproduce it at their own pace. This affordance is particularly relevant for learners who may not have frequent access to proficient English speakers. Dai and Wu (2022), for example, demonstrated the relevance of mobile-assisted peer feedback for EFL pronunciation, while Dillon and Wells (2023) investigated automatic speech recognition-based pronunciation training and its effects on pronunciation accuracy. Research involving ELSA Speak has similarly explored mobile-assisted pronunciation learning among EFL learners (Samad & Ismail, 2020; Sholekhah & Fakhurriana, 2023). A systematic review by Stoughton and Kang (2024) further indicates that empirical research on mobile-assisted pronunciation increasingly examines both perception and production, highlighting the importance of mobile technology as a means of connecting exposure to spoken models with learners' oral production.

The relevance of repeated exposure and oral practice is especially important for the present study because the PORO English Application is designed around listening and speaking activities. The original study describes PORO as an application developed by Poro Studio that provides English listening and speaking materials, including dialogues and expressions that learners can listen to and imitate. The application allows learners to select topics and repeatedly listen to spoken models, while its materials include vocabulary and expressions for everyday communication. Such features are pedagogically relevant to speaking development because they can provide learners with accessible models of spoken English and opportunities to rehearse pronunciation and expressions repeatedly. The application therefore represents a specific form of MALL in which mobile access is combined with audio exposure, repetition, imitation, and independent practice.

This pedagogical affordance also relates to the role of learner autonomy in mobile language learning. Mobile devices can allow learners to access learning materials beyond the temporal and spatial limitations of conventional classroom instruction. Roy and Gandhimathi (2025), in their systematic review of self-directed learning through MALL, highlight the relationship between mobile learning and learners' capacity to manage aspects of their own language learning. Fang (2025) similarly identifies accessibility, readiness, affordances, and challenges as important dimensions in understanding MALL. Habib et al. (2022) also examined accessibility, adoption, and perceived outcomes of mobile-assisted language learning. These findings suggest that the value of a mobile application may extend beyond its immediate instructional function by providing learners with additional opportunities to engage with English according to their learning needs and circumstances.



At the same time, the existing literature indicates that the effects of mobile learning should be interpreted critically. Systematic reviews have identified substantial variation in mobile-assisted language learning practices, research designs, learning outcomes, and technological affordances (Figueiredo, 2023; Zhou et al., 2023; Fang, 2025). Guo et al. (2024) further demonstrate the increasing diversity of collaborative mobile-assisted language learning practices. Research on mobile-assisted vocabulary learning has also shown that mobile technologies are used across different linguistic outcomes rather than speaking alone (Dağdelen, 2023). Consequently, evidence that a particular mobile application supports one aspect of language learning does not automatically establish that another application will produce the same outcome for speaking. Research examining specific applications and particular learner populations therefore remains necessary.

This issue is especially relevant to the Indonesian secondary-school context. Although recent Indonesian studies have examined MALL for speaking development, including research involving secondary-school learners (Asikin et al., 2025; Sari et al., 2024), the available evidence remains limited in relation to specific applications and local instructional contexts. The present study focuses on PORO English Application and students at SMPN 8 Palopo. The study originated from classroom observations indicating that students experienced difficulties in understanding spoken English, reproducing spoken content, and participating actively in speaking activities. The original report also describes students' hesitation and fear when asked to participate in English-speaking practice and notes that existing classroom practice was perceived as repetitive and insufficiently varied. These classroom conditions provide a practical rationale for examining whether a mobile application that facilitates repeated listening and imitation can support students' oral performance.

The study is also relevant because PORO differs in emphasis from some of the better-known mobile applications examined in recent MALL research. Much of the contemporary literature has investigated applications designed around automated pronunciation feedback, social interaction, peer feedback, gamification, or collaborative learning. In contrast, the PORO application used in the present study provides learners with spoken English materials that they can listen to and imitate repeatedly. Its relevance therefore lies not simply in being a mobile application, but in the particular learning affordances associated with accessible spoken input, repetition, imitation, vocabulary exposure, and practice. The present research can consequently contribute contextual evidence concerning how these affordances may be associated with speaking performance among Indonesian EFL learners at the junior-secondary level.

Nevertheless, the contribution of the present study should be understood within the methodological scope of its design. The study uses a pre-experimental one-group pre-test/post-test design rather than a randomized controlled or controlled quasi-experimental design. Therefore, the purpose is to examine changes in students' speaking performance following the implementation of PORO rather than to establish a definitive causal effect that excludes alternative explanations. This distinction is important because recent methodological reviews of commercial MALL research have emphasized the need for stronger reporting and more careful interpretation of evidence generated from mobile applications (Kessler et al., 2025). Accordingly, the present study treats the change between pre-test and post-test performance as empirical evidence associated with the intervention while avoiding claims that extend beyond the capacity of the research design.



Against this background, the present study examines the use of the PORO English Application to support the speaking performance of second-grade students at SMPN 8 Palopo. Speaking performance is operationalized through four dimensions reported in the original study: vocabulary, fluency, pronunciation, and comprehension. The study seeks to determine whether students demonstrate improvement in their speaking performance after participating in learning activities involving the PORO English Application. By examining a specific mobile application in an Indonesian junior-secondary EFL setting, the study adds context-specific evidence to the growing literature on MALL and speaking development. More broadly, it addresses the practical question of how accessible mobile-based listening and imitation activities may be incorporated into English-speaking instruction when learners require additional opportunities to encounter, rehearse, and produce spoken English.

2. METHODS

2.1. Research Design

This study employed a quantitative approach using a pre-experimental one-group pre-test-post-test design. The design was selected to examine changes in students' speaking performance following the implementation of the PORO English Application. In this design, the same group of students completed a speaking pre-test before the intervention and a post-test after the intervention. The difference between the two sets of scores was subsequently examined to determine whether students demonstrated improvement after participating in the learning activities using the application.

The study did not employ a control or comparison group. Therefore, the design was intended to identify changes in students' speaking performance associated with the implementation of the intervention rather than to establish a definitive causal effect of the PORO English Application in comparison with another instructional treatment. This methodological limitation is taken into consideration when interpreting the findings.

The research was conducted at SMPN 8 Palopo, South Sulawesi, Indonesia. The participants were second-grade students enrolled at the school. The study involved 30 students who participated in the pre-test, treatment, and post-test. The research was conducted during the academic period reported in the original study.

2.2. Research Setting and Participants

The participants consisted of 30 second-grade students of SMPN 8 Palopo. The study used purposive sampling to select the participants. The selection was based on the researchers' consideration of the students as an appropriate group for examining the use of the PORO English Application in speaking instruction.

The participants constituted a single instructional group. All students received the same intervention and completed the same assessment procedures. The use of one intact group enabled the researchers to compare individual and group speaking performance before and after the intervention.

Because the study involved a relatively small group from a single school and did not employ random assignment or a control group, the findings should be interpreted within the specific context of the participating students. The study therefore provides contextual evidence concerning the use of PORO among Indonesian EFL learners rather than evidence that can automatically be generalized to all secondary-school EFL learners.



2.3. Data Collection

The principal instrument used to measure students' speaking performance was a speaking test administered as a pre-test and post-test. The same general assessment framework was used before and after the treatment to enable comparison of students' speaking performance across the two measurement points.

The speaking assessment focused on four dimensions:

1. Vocabulary, referring to students' ability to use appropriate English words and expressions in producing spoken responses;
2. Fluency, referring to the smoothness and continuity of students' oral production;
3. Pronunciation, referring to the accuracy and comprehensibility of students' spoken English;
4. Comprehension, referring to students' ability to understand and respond appropriately to the speaking task.

These four dimensions were used as the basis for assessing students' speaking performance. The original study reports that the speaking test was administered before and after the treatment and that students' performance was evaluated across vocabulary, fluency, pronunciation, and comprehension.

The instrument was therefore aligned with the primary purpose of the study, namely, to determine whether students' overall speaking performance changed following their participation in PORO-based learning activities. The available research documentation, however, does not provide sufficient information to establish additional psychometric properties such as a numerical validity coefficient, reliability coefficient, or inter-rater reliability. Such information is therefore not reported here.

2.4. Learning Treatment

The intervention consisted of learning activities using the PORO English Application. The treatment was implemented over four sessions. The application was selected because it provides English listening and speaking materials that can be accessed through a mobile device and practiced repeatedly.

PORO English provides spoken English materials in the form of dialogues, expressions, and other language-learning content. The materials enable learners to listen to spoken English and imitate the models provided by the application. The application also allows users to select learning topics and repeatedly access the materials. These features were considered relevant to the development of speaking performance because they provide opportunities for students to listen to English models, rehearse expressions, and practice producing spoken English.

During the intervention, students engaged with the application as part of their speaking-learning activities. The treatment was intended to provide additional exposure to spoken English and opportunities for oral practice. Repeated listening and imitation were particularly relevant because students were expected to reproduce spoken expressions after listening to the models available through the application.

The treatment consequently incorporated the use of mobile technology into speaking practice rather than treating the application solely as a source of supplementary information. Students interacted with spoken English materials through their mobile devices and used the materials as models for oral practice.



2.5. Data Collection Procedure

Data collection was conducted through three principal stages: pre-test, treatment, and post-test. Firstly, the students completed a pre-test to establish their initial speaking performance before the implementation of the PORO English Application. The pre-test provided baseline scores for the four assessed dimensions of speaking: vocabulary, fluency, pronunciation, and comprehension.

Secondly, the students participated in the PORO-based treatment for four sessions. During these sessions, the application was incorporated into speaking-learning activities. Students accessed the available English materials, listened to spoken models, and practiced reproducing the expressions and utterances presented through the application. The intervention was intended to provide students with repeated opportunities to engage with spoken English and practice their oral production.

Lastly, after completion of the treatment, the students completed a post-test. The post-test was used to measure students' speaking performance following the intervention. The pre-test and post-test results were then compared to identify changes in students' performance.

The data collection procedure therefore followed the sequence:

Pre-test → Four PORO treatment sessions → Post-test.

This sequence was designed to provide a direct comparison between students' speaking performance before and after exposure to the intervention. The original research documentation confirms the use of pre-test and post-test assessments and four treatment sessions.

2.6. Data Analysis

The quantitative data obtained from the speaking assessments were analyzed using SPSS version 22. Descriptive statistics were used to summarize students' speaking performance before and after the intervention, including the mean and standard deviation.

To examine the difference between students' pre-test and post-test scores, a paired-samples t-test was employed. This test was selected because the study involved the same group of students assessed at two different measurement points. The analysis was conducted to determine whether the observed difference between the pre-test and post-test scores was statistically significant.

The analysis focused on changes in students' overall speaking performance following the implementation of the PORO English Application. The statistical results were interpreted based on the significance criterion applied in the study, with the t-value, degrees of freedom, and significance level considered in determining whether a statistically significant difference existed between the two sets of scores.

Given the one-group pre-test-post-test design, the statistical results were interpreted as evidence of a difference in students' speaking performance between the two assessment occasions. The findings were not interpreted as definitive evidence of a causal effect attributable exclusively to the PORO English Application, because the study did not include a control or comparison group.



3. RESULTS

3.1. Overall Speaking Performance Before and After the Intervention

The results were obtained from the speaking pre-test and post-test administered to the 30 participating students. Students' speaking performance was assessed across four dimensions: vocabulary, fluency, pronunciation, and comprehension. The scores from the four dimensions were combined to obtain an overall speaking score for each student.

The pre-test results indicated that students entered the intervention with relatively low speaking performance. As presented in Table 1, the total score obtained by the 30 students was 134, corresponding to a mean score of 4.47. The component totals were 32 for vocabulary, 35 for fluency, 30 for pronunciation, and 37 for comprehension. These results show that students' initial performance was low across all four assessed dimensions.

Table 1. Students' Speaking Performance in the Pre-Test

Speaking dimension	Total score
Vocabulary	32
Fluency	35
Pronunciation	30
Comprehension	37
Overall	134
Mean	4.47

The post-test results showed a higher level of performance following the four treatment sessions. The total score increased to 239, with a mean score of 7.93. The component totals were 62 for vocabulary, 62 for fluency, 56 for pronunciation, and 58 for comprehension. Thus, the aggregate post-test score was substantially higher than the pre-test score.

Table 2. Students' Speaking Performance in the Post-Test

Speaking dimension	Total score
Vocabulary	62
Fluency	62
Pronunciation	56
Comprehension	58
Overall	239
Mean	7.93

The difference between the two overall means was 3.46 points, increasing from 4.47 in the pre-test to 7.93 in the post-test. In relative terms, the post-test mean was approximately 77.4% higher than the pre-test mean. The raw total score likewise increased by 105 points, from 134 to 239. These descriptive results indicate a substantial increase in the overall speaking scores between the two assessment occasions.

The increase was also evident in each of the four assessed dimensions. Vocabulary increased from a total of 32 to 62, fluency from 35 to 62, pronunciation from 30 to 56, and comprehension from 37 to 58. Therefore, all four dimensions recorded higher aggregate scores at post-test than at pre-test.



3.2. Pre-Test Performance by Speaking Dimension

The distribution of pre-test scores provides further information about students' initial speaking performance. In vocabulary, all students were reported as belonging to the lowest performance category used in the original scoring classification. The same pattern was reported for fluency, pronunciation, and comprehension. In each of these four dimensions, 100% of the students were classified in the lowest reported category at the pre-test stage.

The pre-test distribution therefore indicates that the students began the study with generally weak performance across the assessed speaking dimensions rather than demonstrating a strong performance in one particular component. The total component scores further support this pattern. Pronunciation recorded the lowest aggregate score, at 30, followed by vocabulary at 32, fluency at 35, and comprehension at 37.

This distribution is also visible in the individual student scores. Most students obtained a total pre-test score of either 4 or 5 across the four dimensions, while only a small number obtained 6. The lowest individual total reported was 4, whereas the highest was 6.

3.3. Post-Test Performance by Speaking Dimension

The post-test distribution showed a different pattern. In vocabulary, 5 students (17%) were classified in the reported poor category, while 25 students (83%) remained in the lowest reported category. No students were classified in the higher categories reported in the original scoring distribution.

A similar pattern was observed for fluency. Four students (13%) were classified in the poor category, whereas 26 students (87%) remained in the lowest reported category. Although the majority of students remained in the lower category, the post-test distribution differed from the pre-test distribution because a proportion of students moved into the higher category.

The distribution for pronunciation was more homogeneous. All 30 students (100%) remained in the lowest reported category for this dimension. Consequently, although the aggregate pronunciation score increased from 30 at pre-test to 56 at post-test, the categorical distribution reported in the original analysis did not show students moving into the higher classification categories.

Comprehension demonstrated a distribution similar to fluency. Four students (13%) were classified in the poor category, while 26 students (87%) were classified in the lowest reported category. Thus, the post-test distribution showed a small proportion of students reaching the higher category while the majority remained in the lower category.

Overall, the categorical findings should be considered alongside the continuous score data. The aggregate scores increased in all four dimensions, even though the categorical distribution did not shift uniformly across all components. This distinction is particularly important for pronunciation, where the total score increased despite all students remaining in the lowest reported categorical classification.

3.4. Descriptive Statistics of Pre-Test and Post-Test Scores

The paired descriptive statistics generated through SPSS 22 provide a direct comparison of students' performance across the two measurement occasions. The mean pre-test score was 4.47, with a standard deviation of 0.629. Following the intervention,



the mean post-test score increased to 7.93, with a standard deviation of 0.907. The corresponding standard errors of the mean were reported as 0.115 for the pre-test and 0.166 for the post-test.

Table 3. Descriptive Statistics of Pre-Test and Post-Test Speaking Scores

Measurement	Mean	Standard deviation	Standard error
Pre-test	4.47	0.629	0.115
Post-test	7.93	0.907	0.166

The descriptive statistics show an increase of 3.46 points in the mean speaking score. The standard deviation also increased from 0.629 to 0.907, indicating greater variation in students' scores at post-test than at pre-test. Thus, the post-test results were not only higher on average but also somewhat more dispersed across students.

The paired observations were also reported to have a correlation coefficient of 0.721. This indicates a strong positive association between students' pre-test and post-test scores in the paired analysis reported in the original study.

3.5. Paired-Samples Test

To determine whether the observed difference between the two measurement occasions was statistically significant, the study used a paired-samples *t*-test. The analysis involved the same 30 students who completed both assessments, resulting in 29 degrees of freedom.

The reported paired-samples analysis produced a *t*-value of 30.196 with *df* = 29. The original study compares this value with a reported critical *t* value of 3.038 and concludes that the obtained value is greater than the critical value.

Table 4. Paired-Samples Test of Pre-Test and Post-Test Scores

Statistic	Value
<i>t</i>	30.196
<i>df</i>	29
Reported critical <i>t</i>	3.038

The statistical result therefore indicates a statistically significant difference between students' speaking scores at the pre-test and post-test measurement points according to the statistical criterion reported in the original study. The direction of the difference was positive, as reflected in the increase in the mean score from 4.47 to 7.93.

Taken together, the descriptive and inferential findings provide consistent evidence of a substantial difference between students' speaking performance before and after the intervention. The overall mean increased by 3.46 points, the total score increased from 134 to 239, and the paired-samples analysis yielded a reported *t*-value of 30.196 with 29 degrees of freedom.

However, these findings should be interpreted in relation to the study design. The results establish a statistically significant difference between the pre-test and post-test scores of the participating students, but because the research employed a one-group pre-test-post-test design without a control group, the results alone do not isolate the PORO English Application as the sole cause of the observed improvement. This methodological qualification is important when the statistical findings are subsequently compared with evidence from previous MALL studies in the Discussion.



4. DISCUSSION

The present study examined changes in the speaking performance of second-grade students at SMPN 8 Palopo following the implementation of the PORO English Application. The findings showed a substantial increase in students' overall speaking scores, from a mean of 4.47 in the pre-test to 7.93 in the post-test. The paired-samples analysis also indicated a statistically significant difference between the two measurement occasions, with $t = 30.196$ and $df = 29$. These findings suggest that students demonstrated markedly higher speaking performance after participating in the PORO-based learning activities. However, because the study employed a one-group pre-test-post-test design without a control group, the findings should be interpreted as evidence of improvement following the intervention rather than as definitive evidence that the application alone caused the observed change.

4.1. Mobile-Assisted Language Learning and Speaking Development

The overall improvement observed in this study is consistent with the broader body of research indicating that mobile-assisted language learning can provide useful support for foreign-language speaking development. Li (2024), through a meta-analysis of research on MALL and speaking development, reported an overall positive effect of mobile-assisted learning on learners' speaking outcomes. This broader evidence provides an appropriate context for interpreting the increase observed among the students in the present study. The current findings similarly suggest that incorporating a mobile application into speaking instruction can be associated with improved oral performance.

The result is also consistent with Hwang et al. (2024), who found that the affordances of a MALL application could support EFL learners' speaking skills while simultaneously influencing foreign-language enjoyment and language-specific grit. Their findings are relevant because they demonstrate that the contribution of mobile learning may extend beyond the delivery of digital materials. Mobile applications can create learning conditions in which students receive repeated exposure to language, practice oral production, and engage with learning activities through a more accessible medium.

The present findings are further compatible with Aliakbari and Mardani (2022), who reported positive relationships between MALL and learners' speaking development, and with Ahmed et al. (2022), who examined mobile applications including Duolingo and WhatsApp in relation to speaking accuracy and fluency. Similarly, Criollo-C et al. (2022) demonstrated the potential of mobile applications as part of a methodology for improving English speaking skills. Taken together, these studies and the present findings point toward the potential value of mobile technologies as supplementary environments for oral language practice.

Nevertheless, the present study contributes a somewhat different contextual perspective because it focuses on the PORO English Application and junior-secondary EFL learners in Indonesia. The findings therefore should not be interpreted simply as another confirmation that "mobile learning works." Rather, they provide contextual evidence that a mobile application centered on listening exposure, spoken models, repetition, and imitation can be incorporated into speaking instruction for learners who initially demonstrated low oral performance.



4.2. The Role of Repeated Exposure and Oral Practice

One possible explanation for the observed improvement concerns the opportunities for repeated exposure and practice provided by the application. The PORO English Application offers spoken English materials, including dialogues and expressions, which students can listen to and imitate repeatedly. For learners with limited opportunities to interact with English beyond the classroom, this type of access may be particularly useful because it allows spoken input to be revisited rather than being available only during a single classroom encounter.

Repeated exposure is relevant to speaking development because producing spoken language requires learners to coordinate several processes simultaneously. Learners need to retrieve vocabulary, organize an intended message, produce intelligible pronunciation, and maintain sufficient continuity in their speech. A single exposure to a linguistic form may not be sufficient for learners to develop confidence in using it. Mobile applications can potentially reduce this limitation by allowing learners to access the same material repeatedly and at their own pace.

This interpretation is compatible with Figueiredo's (2023) systematic review, which identified mobile-assisted learning as a significant area of research in language attainment while also showing variation across contexts and learning outcomes. The present findings provide a more specific example of how mobile-assisted exposure may be associated with oral-language improvement. They also correspond with research emphasizing the accessibility and affordances of MALL (Fang, 2025; Habib et al., 2022). The importance of accessibility is particularly relevant for secondary-school learners because mobile learning can extend opportunities for language engagement beyond the immediate constraints of classroom time.

However, the improvement should not be attributed simply to the technological format of the application. The pedagogical activities accompanying the technology are also important. The relevant affordance of PORO in this study was not merely that students used smartphones, but that they used the application to listen to spoken English and practice producing it. The combination of mobile access and oral practice therefore provides a more plausible interpretation of the observed improvement than technology use alone.

4.3. Changes Across the Four Speaking Dimensions

The findings showed increases in the aggregate scores for all four assessed dimensions: vocabulary, fluency, pronunciation, and comprehension. Vocabulary increased from 32 in the pre-test to 62 in the post-test, fluency increased from 35 to 62, pronunciation increased from 30 to 56, and comprehension increased from 37 to 58. Thus, the improvement was not restricted to a single component of speaking performance.

The increase in vocabulary can be understood in relation to the language materials encountered through the application. Exposure to dialogues and everyday expressions may provide learners with additional linguistic resources for oral production. This interpretation is broadly consistent with the wider literature on mobile-assisted vocabulary learning, although vocabulary development was not the primary outcome examined in this study (Dağdeler, 2023). The present findings suggest that vocabulary exposure embedded within speaking-oriented activities may have contributed to students' ability to produce oral responses.



Fluency also demonstrated a considerable increase in aggregate scores. Mobile-based repetition may have provided students with opportunities to become more familiar with expressions and spoken patterns before producing them independently. This interpretation is consistent with the broader evidence that mobile-assisted learning can support speaking development and oral performance (Li, 2024; Ahmed et al., 2022). Greater familiarity with frequently encountered expressions may reduce some of the difficulty associated with retrieving language during speaking activities.

Pronunciation presents a more complex finding. Although the aggregate pronunciation score increased from 30 to 56, the categorical distribution reported in the study indicated that all students remained in the lowest reported pronunciation category at post-test. Thus, the improvement in pronunciation scores should not be interpreted as evidence that students achieved a substantial categorical transition in pronunciation proficiency. Rather, the result suggests that some degree of improvement was reflected in the scoring system even though the categorical classification remained unchanged.

This finding is nevertheless relevant to the literature on mobile-assisted pronunciation learning. Dai and Wu (2022) demonstrated the potential of mobile-assisted activities for pronunciation development, while Dillon and Wells (2023) examined automatic speech-recognition-based pronunciation training. Stoughton and Kang (2024), in their systematic review, emphasized the growing empirical attention given to mobile-assisted pronunciation from both perception and production perspectives. Compared with these studies, the present intervention appears to rely more heavily on listening and imitation than on sophisticated automated pronunciation feedback. The findings therefore suggest that repeated exposure and imitation may support aspects of pronunciation development, although the unchanged categorical distribution indicates that pronunciation may require more sustained or specialized intervention.

Comprehension also improved from an aggregate score of 37 to 58. This finding is potentially related to the listening component of the PORO materials. Because students were repeatedly exposed to spoken English, they had opportunities to become more familiar with spoken forms and expressions. Improvement in comprehension may consequently have supported speaking performance indirectly by enabling students to understand spoken input more effectively and respond to it.

4.4. Relevance to the Indonesian EFL Context

The findings are particularly relevant when considered alongside recent Indonesian research. Asikin et al. (2025) investigated MALL in an Indonesian high-school context and reported evidence concerning its effectiveness for English speaking proficiency. Sari et al. (2024) similarly examined MALL and speaking skills among students at SMP Negeri 45 Palembang. Pebiana and Febria (2023) examined MALL in relation to students' motivation for speaking. These studies collectively indicate growing interest in mobile-assisted speaking instruction in Indonesian educational settings.

The present study extends this line of research by focusing on students at SMPN 8 Palopo and examining the use of a specific mobile application. This contextual specificity is important because the effectiveness and usability of a technology-mediated learning approach can depend on learners, instructional conditions, available resources, and the design of the application. Findings obtained in one Indonesian setting cannot automatically be generalized to another. Nevertheless, the convergence between the



present findings and recent Indonesian studies strengthens the argument that MALL deserves further investigation as a supplementary approach to EFL speaking instruction in Indonesian schools.

The local context also helps explain why mobile learning may be valuable. When classroom speaking opportunities are limited, a mobile application can provide additional opportunities for learners to encounter and practice English. The potential value therefore lies partly in expanding the amount of language engagement available to students. This is consistent with the broader literature emphasizing accessibility, adoption, self-directed learning, and learner affordances in MALL (Habib et al., 2022; Roy & Gandhimathi, 2025; Fang, 2025).

4.5. Implications and Methodological Interpretation

From a pedagogical perspective, the findings suggest that teachers may consider mobile applications as supplementary resources for speaking instruction, particularly when the applications provide accessible spoken models and opportunities for repeated oral practice. The findings do not imply that mobile applications should replace classroom interaction or teacher guidance. Instead, they suggest that mobile technology can complement classroom instruction by extending opportunities for exposure and practice.

At the same time, the methodological characteristics of the present study require cautious interpretation. Kessler et al. (2025) emphasized methodological and ethical considerations in quantitative and mixed-methods research involving commercial MALL applications. This concern is directly relevant here because the present research did not include a control group. Other factors occurring during the study period may therefore have contributed to the observed improvement. These may include ordinary classroom learning, repeated exposure to the assessment format, increased familiarity with the speaking tasks, or other learning experiences.

Accordingly, the statistically significant pre-test-post-test difference should be regarded as an important empirical finding, but not as conclusive evidence of a unique causal effect of PORO. Future research could strengthen the evidence by using a control or comparison group, larger samples, longer intervention periods, and more detailed measures of individual speaking dimensions. Such designs would make it possible to determine more precisely which components of mobile-assisted learning contribute to speaking development and under what instructional conditions.

Overall, the findings indicate that the PORO English Application was associated with substantial improvement in the speaking scores of the participating students. The result is broadly consistent with the growing literature on MALL and speaking development while providing additional evidence from an Indonesian junior-secondary EFL context. The most important contribution of the study is therefore not simply the finding that students obtained higher post-test scores, but the contextual evidence that a mobile learning environment centered on spoken input, repetition, and imitation can be incorporated into speaking instruction for learners who initially demonstrate limited oral performance.

5. CONCLUSION

This study examined the use of the PORO English Application in supporting the speaking performance of second-grade students at SMPN 8 Palopo. The study was motivated by the difficulties experienced by the participating students in using English



orally, particularly in relation to vocabulary, fluency, pronunciation, and comprehension. To address these difficulties, PORO was incorporated into speaking-learning activities over four treatment sessions, providing students with opportunities to access spoken English materials, listen to language models, and practice producing spoken expressions.

The findings demonstrate a clear improvement in students' overall speaking performance between the pre-test and post-test. The mean score increased from 4.47 before the intervention to 7.93 after the intervention, representing an increase of 3.46 points. The total score of the 30 participating students also increased from 134 in the pre-test to 239 in the post-test. Improvements were observed across all four assessed dimensions. Vocabulary increased from 32 to 62, fluency from 35 to 62, pronunciation from 30 to 56, and comprehension from 37 to 58. These results indicate that the improvement in overall speaking performance was accompanied by increases in each of the assessed components.

The inferential analysis provided additional evidence of a difference between the two measurement occasions. The paired-samples t-test produced a reported t-value of 30.196 with 29 degrees of freedom, indicating a statistically significant difference between students' pre-test and post-test speaking scores according to the statistical criterion used in the study. The descriptive and inferential findings therefore consistently indicate that students performed better in the post-test than they did before participating in the PORO-based learning activities.

The findings suggest that the PORO English Application can serve as a potentially useful supplementary resource for EFL speaking instruction, particularly because it provides students with accessible spoken-English materials that can be listened to and practiced repeatedly. The application may provide additional opportunities for exposure to spoken English and oral rehearsal, which can be valuable for learners who have limited opportunities to practice English outside formal classroom activities. In this respect, the study supports the broader direction of research on mobile-assisted language learning, which increasingly recognizes mobile technology as a means of extending language-learning opportunities beyond conventional classroom boundaries.

The study also indicates that mobile-assisted speaking instruction should not be understood simply as the introduction of a technological device into the classroom. The pedagogical value of PORO in the present study was associated with the particular learning activities facilitated by the application, especially exposure to spoken models, repeated listening, and imitation. These features provided students with opportunities to engage with English orally and repeatedly. The findings therefore suggest that teachers may consider integrating appropriately selected mobile applications into speaking instruction as complementary resources rather than viewing technology as a substitute for classroom teaching and interpersonal communication.

Despite these positive findings, the conclusions must be considered in light of the methodological limitations of the study. The research employed a one-group pre-test-post-test design involving 30 students from a single school and did not include a control or comparison group. Consequently, the observed improvement cannot be attributed exclusively to the PORO English Application. Other factors, including regular classroom instruction, increased familiarity with the assessment, repeated exposure to English, or other learning experiences during the study period, may have contributed to the observed change. The findings should therefore be understood as evidence of improvement following the intervention rather than definitive evidence of a causal effect of PORO.



The results also indicate that improvement across speaking dimensions was not completely uniform. Although aggregate scores increased for vocabulary, fluency, pronunciation, and comprehension, the categorical distribution did not demonstrate the same degree of movement across all dimensions. Pronunciation, in particular, requires cautious interpretation because the aggregate score increased while the reported categorical classification remained unchanged for all students. This suggests that improvement in oral performance may require more sustained and targeted pronunciation practice than the four-session intervention could provide.

For educational practice, the findings support the use of mobile-assisted activities as an additional means of providing students with repeated exposure to spoken English. Teachers may use applications such as PORO to supplement classroom speaking activities, particularly when students need additional opportunities to listen to English models and rehearse spoken expressions. However, mobile-assisted activities should ideally be integrated with teacher feedback, peer interaction, communicative tasks, and other forms of authentic speaking practice so that learners can gradually move from imitation toward more independent and meaningful oral communication.

Future research should build on the present findings through stronger research designs and broader samples. Studies involving control or comparison groups would provide stronger evidence regarding the contribution of mobile-assisted learning to speaking development. Larger samples and participants from multiple schools would also improve the transferability of findings across educational contexts. Longer intervention periods could further clarify whether the improvements observed in the present study can be sustained over time. Future researchers may also examine individual speaking dimensions separately, particularly pronunciation and fluency, and investigate whether different types of mobile affordances produce different learning outcomes.

In conclusion, the present study provides contextual evidence that the use of the PORO English Application was followed by substantial improvement in the speaking performance of the participating students at SMPN 8 Palopo. The increase in overall speaking scores and the statistically significant pre-test–post-test difference indicate meaningful improvement within the study group. While the findings cannot establish a definitive causal effect because of the research design, they nevertheless demonstrate the potential of mobile-assisted learning to provide additional opportunities for English-speaking practice. The study therefore contributes to the growing body of MALL research by highlighting the relevance of accessible spoken input, repetition, and mobile-supported oral practice in an Indonesian EFL junior-secondary context.

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